



18

1

SEQUENCE LISTING

<110> EVANS, RONALD M.

<120> NOVEL STEROID-ACTIVATED NUCLEAR RECEPTORS AND USES THEREFOR

<130> SALK2270-5 (088802-5212)

<140> 10/081,555

<141> 2002-02-20

<150> 09/458,366

<151> 1999-12-09

<150> 09/227,718

<151> 1999-01-08

<150> 09/005,286

<151> 1998-01-09

<160> 44

<170> PatentIn Ver. 2.1

<210> 1

<211> 2068

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (583)...(1887)

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cagactgatg aaatgcgcctc agaattactt agacaaagcg gatatttgcc actctcttcc 120

ccttttcctg tgttttgtt gtgaagagac ctgaaagaaa aaagtaggga gaacataatg 180

agaacaaata cggttaatctc ttcatttgct agttcaagtg ctggacttgg gacttaggag 240

gggcaatgga gccgcttagt gcctacatct gacttggact gaaatatagg tgagagacaa 300

gattgtctca tatccgggga aatcataacc tatgactagg acgggaagag gaagcactgc 360

ctttacttca gtggaatct cggcctcagc ctgcaagcca agtgttcaca gtgagaaaag 420

caagagaata agctaatact cctgtcctga acaaggcago ggctccttgg taaagctact 480

ccttgatcga tcctttgcac cggattgttc aaagtggacc ccaggggaga agtcggagca 540

aagaacttac caccaaggcag tccaagaggc ccagaagcaa ac ctg gag gtg aga 594

Met Glu Val Arg

ccc aaa gaa agc tgg aac cat gct gac ttt gta cac tgt gag gac aca Pro Lys Glu Ser Trp Asn His Ala Asp Phe Val His Cys Glu Asp Thr	642
5 10 15 20	
gag tct gtt cct gga aag ccc agt gtc aac gca gat gag gaa gtc gga Glu Ser Val Pro Gly Lys Pro Ser Val Asn Ala Asp Glu Glu Val Gly	690
25 30 35	
ggt ccc caa atc tgc cgt gta tgt ggg gac aag gcc act ggc tat cac Gly Pro Gln Ile Cys Arg Val Cys Gly Asp Lys Ala Thr Gly Tyr His	738
40 45 50	
ttc aat gtc atg aca tgt gaa gga tgc aag ggc ttt ttc agg agg gcc Phe Asn Val Met Thr Cys Glu Gly Cys Lys Gly Phe Arg Arg Ala	786
55 60 65	
atg aaa cgc aac gcc cg <sup>g</sup> ctg agg tgc ccc ttc cg <sup>g</sup> aag gg <sup>c</sup> gcc tgc Met Lys Arg Asn Ala Arg Leu Arg Cys Pro Phe Arg Lys Gly Ala Cys	834
70 75 80	
gag atc acc cg <sup>g</sup> aag acc cg <sup>g</sup> cga cag tgc cag gcc tgc cg <sup>c</sup> ctg cg <sup>c</sup> Glu Ile Thr Arg Lys Thr Arg Arg Gln Cys Gln Ala Cys Arg Leu Arg	882
85 90 95 100	
aag tgc ctg gag agc gg <sup>c</sup> atg aag gag atg atc atg tcc gac gag Lys Cys Leu Glu Ser Gly Met Lys Glu Met Ile Met Ser Asp Glu	930
105 110 115	
gg <sup>c</sup> gtg gag gag agg cg <sup>g</sup> gg <sup>c</sup> ttg atc aag cg <sup>g</sup> aag aaa agt gaa cg <sup>g</sup> Ala Val Glu Glu Arg Arg Ala Leu Ile Lys Arg Lys Ser Glu Arg	978
120 125 130	
aca ggg act cag cca ctg gga gtg cag ggg ctg aca gag gag cag cg <sup>g</sup> Thr Gly Thr Gln Pro Leu Gly Val Gln Gly Leu Thr Glu Glu Gln Arg	1026
135 140 145	
atg atg atc agg gag ctg atg gac gct cag atg aaa acc ttt gac act Met Met Ile Arg Glu Leu Met Asp Ala Gln Met Lys Thr Phe Asp Thr	1074
150 155 160	
acc ttc tcc cat ttc aag aat ttc cg <sup>g</sup> ctg cca ggg gtg ctt agc agt Thr Phe Ser His Phe Lys Asn Phe Arg Leu Pro Gly Val Leu Ser Ser	1122
165 170 175 180	
gg <sup>c</sup> tgc gag ttg cca gag tct ctg cag gcc cca tcg agg gaa gaa gct Gly Cys Glu Leu Pro Glu Ser Leu Gln Ala Pro Ser Arg Glu Glu Ala	1170
185 190 195	
gg <sup>c</sup> aag tgg agc cag gtc cg <sup>g</sup> aaa gat ctg tgc tct ttg aag gtc tct Ala Lys Trp Ser Gln Val Arg Lys Asp Leu Cys Ser Leu Lys Val Ser	1218
200 205 210	
ctg cag ctg cg <sup>g</sup> ggg gag gat gg <sup>c</sup> agt gtc tgg aac tac aaa ccc cca Leu Gln Leu Arg Gly Glu Asp Gly Ser Val Trp Asn Tyr Lys Pro Pro	1266
215 220 225	

gcc gac agt ggc ggg aaa gag atc ttc tcc ctg ctg ccc cac atg gct Ala Asp Ser Gly Gly Lys Glu Ile Phe Ser Leu Leu Pro His Met Ala 230 235 240	1314
gac atg tca acc tac atg ttc aaa ggc atc atc agc ttt gcc aaa gtc Asp Met Ser Thr Tyr Met Phe Lys Gly Ile Ile Ser Phe Ala Lys Val 245 250 255 260	1362
atc tcc tac ttc agg gac ttg ccc atc gag gac cag atc tcc ctg ctg Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln Ile Ser Leu Leu 265 270 275	1410
aag ggg gcc gct ttc gag ctg tgt caa ctg aga ttc aac aca gtg ttc Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe Asn Thr Val Phe 280 285 290	1458
aac gcg gag act gga acc tgg gag tgt ggc cgg ctg tcc tac tgc ttg Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu Ser Tyr Cys Leu 295 300 305	1506
gaa gac act gca ggt ggc ttc cag caa ctt cta ctg gag ccc atg ctg Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Leu Glu Pro Met Leu 310 315 320	1554
aaa ttc cac tac atg ctg aag aag ctg cag ctg cat gag gag gag tat Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His Glu Glu Glu Tyr 325 330 335 340	1602
gtg ctg atg cag gcc atc tcc ctc ttc tcc cca gac cgc cca ggt gtg Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp Arg Pro Gly Val 345 350 355	1650
ctg cag cac cgc gtg gtg gac cag ctg cag gag caa ttc gcc att act Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln Phe Ala Ile Thr 360 365 370	1698
ctg aag tcc tac att gaa tgc aat cgg ccc cag cct gct cat agg ttc Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro Ala His Arg Phe 375 380 385	1746
ttg ttc ctg aag atc atg gct atg ctc acc gag ctc cgc agc atc aat Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu Arg Ser Ile Asn 390 395 400	1794
gct cag cac acc cag cgg ctg ctc cgc atc cag gac ata cac ccc ttt Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp Ile His Pro Phe 405 410 415 420	1842
gct acg ccc ctc atg cag gag ttg ttc ggt atc aca ggt agc tga Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr Gly Ser 425 430	1887
gtggctgtcc ttgggtgaca cctccgagag gtagtttagac ccagagccct ctgagtcgcc 1947	
actccccggc caagacagat ggacactgcc aagagccgac aatgcctgc tggcctgtct 2007	
cccttagggaa ttccctgctat gacagctggc tagcattcct caggaaggac atggggtgcc 2067	

<210> 2  
<211> 434  
<212> PRT  
<213> Homo sapiens

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Met Glu Val Arg Pro Lys Glu Ser Trp Asn His Ala Asp Phe Val His  
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Cys Glu Asp Thr Glu Ser Val Pro Gly Lys Pro Ser Val Asn Ala Asp  
20               25                           30  
Glu Glu Val Gly Gly Pro Gln Ile Cys Arg Val Cys Gly Asp Lys Ala  
35               40                           45  
Thr Gly Tyr His Phe Asn Val Met Thr Cys Glu Gly Cys Lys Gly Phe  
50               55                           60  
Phe Arg Arg Ala Met Lys Arg Asn Ala Arg Leu Arg Cys Pro Phe Arg  
65               70                           75                           80  
Lys Gly Ala Cys Glu Ile Thr Arg Lys Thr Arg Arg Gln Cys Gln Ala  
85               90                           95  
Cys Arg Leu Arg Lys Cys Leu Glu Ser Gly Met Lys Lys Glu Met Ile  
100              105                           110  
Met Ser Asp Glu Ala Val Glu Glu Arg Arg Ala Leu Ile Lys Arg Lys  
115              120                           125  
Lys Ser Glu Arg Thr Gly Thr Gln Pro Leu Gly Val Gln Gly Leu Thr  
130              135                           140  
Glu Glu Gln Arg Met Met Ile Arg Glu Leu Met Asp Ala Gln Met Lys  
145              150                           155                           160  
Thr Phe Asp Thr Thr Phe Ser His Phe Lys Asn Phe Arg Leu Pro Gly  
165              170                           175  
Val Leu Ser Ser Gly Cys Glu Leu Pro Glu Ser Leu Gln Ala Pro Ser  
180              185                           190  
Arg Glu Glu Ala Ala Lys Trp Ser Gln Val Arg Lys Asp Leu Cys Ser  
195              200                           205  
Leu Lys Val Ser Leu Gln Leu Arg Gly Glu Asp Gly Ser Val Trp Asn  
210              215                           220  
Tyr Lys Pro Pro Ala Asp Ser Gly Gly Lys Glu Ile Phe Ser Leu Leu  
225              230                           235                           240  
Pro His Met Ala Asp Met Ser Thr Tyr Met Phe Lys Gly Ile Ile Ser  
245              250                           255

Phe Ala Lys Val Ile Ser Tyr Phe Arg Asp Leu Pro Ile Glu Asp Gln  
 260 265 270

Ile Ser Leu Leu Lys Gly Ala Ala Phe Glu Leu Cys Gln Leu Arg Phe  
 275 280 285

Asn Thr Val Phe Asn Ala Glu Thr Gly Thr Trp Glu Cys Gly Arg Leu  
 290 295 300

Ser Tyr Cys Leu Glu Asp Thr Ala Gly Gly Phe Gln Gln Leu Leu Leu  
 305 310 315 320

Glu Pro Met Leu Lys Phe His Tyr Met Leu Lys Lys Leu Gln Leu His  
 325 330 335

Glu Glu Glu Tyr Val Leu Met Gln Ala Ile Ser Leu Phe Ser Pro Asp  
 340 345 350

Arg Pro Gly Val Leu Gln His Arg Val Val Asp Gln Leu Gln Glu Gln  
 355 360 365

Phe Ala Ile Thr Leu Lys Ser Tyr Ile Glu Cys Asn Arg Pro Gln Pro  
 370 375 380

Ala His Arg Phe Leu Phe Leu Lys Ile Met Ala Met Leu Thr Glu Leu  
 385 390 395 400

Arg Ser Ile Asn Ala Gln His Thr Gln Arg Leu Leu Arg Ile Gln Asp  
 405 410 415

Ile His Pro Phe Ala Thr Pro Leu Met Gln Glu Leu Phe Gly Ile Thr  
 420 425 430

Gly Ser

<210> 3  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,  
 rCYP3A1

<400> 3  
tagacagttc atgaaggttca tctac

25

<210> 4  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR  
 response element from the steroid hydroxylase,

rCYP3A2

<400> 4  
taagcagttc ataaagttca tctac 25

<210> 5  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR response element from the steroid hydroxylase,  
rUGT1A6

<400> 5  
actgttagttc ataaagttca catgg 25

<210> 6  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR response element from the steroid hydroxylase,  
rbCYP2C1

<400> 6  
caatcagttc aacagggttc accaat 26

<210> 7  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR response element from the steroid hydroxylase,  
rP450R

<400> 7  
cacaggtgag ctgaggccag cagcaggctcg aaa 33

<210> 8  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR response element from the steroid hydroxylase,  
rCYP2A1

<400> 8  
gtgcagggttc aactggaggt caacatg 27

<210> 9  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR response element from the steroid hydroxylase, rCYP2A2

<400> 9  
gtgctgggttc aactggaggt cagtatg 27

<210> 10  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR response element from the steroid hydroxylase, rCYP2C6

<400> 10  
agtcttagttc agtgggggtt cagtctt 27

<210> 11  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Putative SXR response element from the steroid hydroxylase, hCYP2E1

<400> 11  
gagatgggttc aaggaagggt cattaac 27

<210> 12  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat with spacer of 0 nucleotides

<400> 12  
catagtcagg tcaaggtcag atcaac 26

<210> 13  
<211> 27  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 1 nucleotides

<400> 13  
catagtcagg tcataaggta gatcaac

27

<210> 14  
<211> 28  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 2 nucleotides

<400> 14  
catagtcagg tcaataggc agatcaac

28

<210> 15  
<211> 29  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 3 nucleotides

<400> 15  
catagtcagg tcataatagg cagatcaac

29

<210> 16  
<211> 30  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 4 nucleotides

<400> 16  
catagtcagg tcataataagg tcagatcaac

30

<210> 17  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 5 nucleotides

<400> 17  
catagtcagg tcatatatacg gtcagatcaa c

31

<210> 18  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 6 nucleotides

<400> 18  
catagtcagg tcatatataaa ggtcaagatc aac

33

<210> 19  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 7 nucleotides

<400> 19  
catagtcagg tcatatataat aggtcagatc aac

33

<210> 20  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 10 nucleotides

<400> 20  
catagtcagg tcatatataat ataaggtagt atcaac

36

<210> 21  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Direct repeat  
with spacer of 15 nucleotides

<400> 21  
 catagtcagg tcatagtagt agtagtagag gtcagatcaa c 41

<210> 22  
 <211> 17  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Example of a response element suitable for practice of the invention method

<220>  
 <221> modified\_base  
 <222> (7)..(11)  
 <223> This region may encompass 5, 4 or 3 nucleotides, independently selected from a, c, t or g

<400> 22  
 agttcannnn ntgaact 17

<210> 23  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Example of a response element suitable for practice of the invention method

<220>  
 <221> modified\_base  
 <222> (7)..(12)  
 <223> a, c, t or g

<400> 23  
 tgaactnnnn nnaggtca 18

<210> 24  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 24  
 tgaactcaaa ggaggtca 18

<210> 25  
 <211> 18

<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 0  
nucleotides

<400> 25  
agcttaggtc atgaccta

18

<210> 26  
<211> 19  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 1  
nucleotides

<400> 26  
agcttaggtc agtgaccta

19

<210> 27  
<211> 20  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 2  
nucleotides

<400> 27  
agcttaggtc acgtgaccta

20

<210> 28  
<211> 21  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 3  
nucleotides

<400> 28  
agcttaggtc acagtgacct a

21

<210> 29  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 4  
nucleotides

<400> 29  
agcttaggtc acatgtgacc ta

22

<210> 30  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 5  
nucleotides

<400> 30  
agcttaggtc acactgtgac cta

23

<210> 31  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Inverted  
repeat response element with spacer of 6  
nucleotides

<400> 31  
agctttgaac tcaaaggagg tca

23

<210> 32  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: IR-M

<400> 32  
agcttacgtc atgacgta

18

<210> 33  
<211> 33  
<212> DNA  
<213> Homo sapiens

<400> 33  
tagaatatga actcaaagga ggtcagttag tgg

33

<210> 34  
<211> 33  
<212> DNA  
<213> Homo sapiens

<400> 34  
tagaaatatga actcaaagga ggtaagcaaa ggg 33

<210> 35  
<211> 32  
<212> DNA  
<213> Homo sapiens

<400> 35  
tagaatatta actcaatgga ggcagtgagt gg 32

<210> 36  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide for PCR

<400> 36  
gagcaattcg ccattactct gaagt 25

<210> 37  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide for PCR

<400> 37  
gtccttgggg tcttctacct ttctc 25

<210> 38  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide for PCR

<400> 38  
gacgattgg atctggacat gttgg 25

<210> 39  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic oligonucleotide for PCR

<400> 39  
tgaacttcat gaact

15

<210> 40  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 40  
gttttcatct gagcgtccat cagct

25

<210> 41  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Illustrative peptide

<400> 41  
Arg Gly Lys Thr Cys Ala  
1 5

<210> 42  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic oligonucleotide

<400> 42  
tgttcttcat gttct

15

<210> 43  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 43  
acaacttcat gaact

15

<210> 44  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Example of a  
response element suitable for practice of the  
invention method

<220>  
<221> modified base  
<222> (7)..(11)  
<223> This region may encompass 5, 4 or 3 nucleotides,  
independently selected from a, c, t or g

<400> 44  
aggtcannnn naggta

17